

ABSTRACT OF THE DISCLOSURE

A three-dimensional position and orientation sensing apparatus includes an image input section, a region extracting section, a marker identifying section, and a position and orientation calculating section.

The image input section inputs an image including at least three markers, three-dimensional positional information of which with respect to an object to be measured is known in advance. The region extracting section extracts a region corresponding to each marker on the image. The marker identifying section identifies the individual markers based on the characteristics of the appearance of the markers. The position and orientation calculating section calculates the three-dimensional position and orientation of the object to be measured with respect to the image acquisition apparatus, by utilizing the position of each identified marker on the image and three-dimensional positional information of each marker with respect to the object to be measured. A computer-readable recording medium has computer-readable program coding means as a stored processing program for analyzing an image by computer and for measuring the position and orientation of the object to be measured with respect to the image acquisition apparatus that has acquired this image. A probe to be used for measuring the position includes a contacting section

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that is a part to be brought into contact with the object to be measured, and a mark part having identification marks for identifying by the probe disposed on the plane of the probe. A marker having the identification marks disposed on its plane is characterized in that the external shape of each identification mark is circular.

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